



Inc. 1910

Public Works

60 S Main St | PO Box 48 - Driggs, ID 83422 | Ph: 208-354-2362 | Fax: 208-354-8522 | www.driggsidaho.org

December 27, 2018
Updated July 30, 2019
Updated March 25, 2020
Updated April 23, 2020

David Domingo
Ground Water Unit, U.S. EPA Region 10
1200 Sixth Avenue, Suite 155, OCE-201
Seattle, Washington 98101
Via email: domingo.david@epa.gov

RE: City of Driggs Update: CWA-10-2018-0206

Dear Mr. Domingo,

The following letter summarizes activities the City of Driggs has undertaken to bring the Teton Valley Regional Wastewater Reclamation Facility into compliance. I will attempt to summarize our actions taken and findings over the past eight months and the proposed next steps.

The City of Driggs contracted with Forsgren Associates in the spring of 2019 to update our Wastewater Facilities Plan. The goal of the update is to ensure the city accounts for all scenarios when choosing the final corrective measure to bring us into compliance. The study is broken into 2 phases; Phase I is focused on the treatment plant and process, Phase II is focused on the collection system. Phase I was planned to be completed in early 2020 and Phase II complete in late 2020. The project was phased to allow the engineers to focus on the treatment plant first as this was deemed the highest priority. Additionally, the collection system sees peak flows starting in late May through early August and we needed to ensure we could capture this data in the collection system study.

Concurrent to the facilities plan study the City continued to work with the original plant designer, Idaho DEQ, staff and Forsgren to solve the current compliance issues (ammonia). Two “bolt-on” technologies were selected for further study by this group, ozonation and break-point chlorination. Other technologies were not considered due to their biological nature, lack of data and extended piloting requirements from DEQ. Preliminary cost analysis showed that these options were not feasible from a capital, operational and safety perspective.

Forsgren’s initial review of the treatment plant along with incoming flows and loading showed the plant was approaching, and may reach capacity in 2-5 years. This information coupled with the difficulties of a bolt-on system, informed the city that a bigger picture solution may be required.

The city, with it’s expanded staff, undertook a review of Forsgren’s flow and loading projections. The internal review raised some questions regarding the starting point of flow projects and growth rates as they did not correlate to our actual flow. Additional similar questions were raised regarding the loading projections. The city provided our analysis to Forsgren and requested a more in-depth analysis of these items. We are waiting for the updated projections and expect them in the next month or two.

The draft treatment facility plan (Phase I) provided five proposed alternatives for the treatment plant. Alternative 1, required by DEQ, is a “do nothing” option which is not a feasible or practical alternative. The remaining alternatives are outlined below. Each of the remaining alternatives recommend a relocation of the treatment plant outfall to the Teton River. The current outfall into the un-named tributary of Woods Creek is not sustainable due to the very low flow of this receiving water and population growth of the service area.

1. Do Nothing (not a reasonable option)
2. Upgrade controls/optimize the existing plant
3. Design/install “bolt-on” technology to polish ammonia & potentially phosphorus
4. Expand the treatment plant and change the process to activated sludge process
5. Expand the treatment plant and change the process to MBR/SBR process

No alternative has been selected as we are waiting for an updated projection to increase our level of confidence that the plant is approaching capacity.

In addition to the facility plan update the city is continuing to work with both the design engineer and facilities engineer to troubleshoot the existing plant. The design engineer believes that the summer high flows and slug/toxic loadings are inhibiting the treatment process along with cold-water I/I in the winter months. A pre-treatment ordinance was adopted in 2015, however, application of the ordinance has been spotty due to the cumbersome nature and lack of clarity in the document. Therefore, we are taking the following steps in our collection system to monitor and identify issues:

1. Apply the Pre-treatment ordinance to all users
 - a. Create an easy to use document for both the city and dischargers to use (to be provided by the design engineer)
2. Map cold sources in the collection system (currently underway by city staff)
3. Complete an I/I collection system study (planned for summer 2020 by Forsgren)
 - a. Address significant identified I/I immediately, \$25,000 budgeted in 2020
4. Contract with engineer to design new outfall (waiting for proposal from Forsgren)

Although we have made progress with the current facility, we are unable to meet our ammonia compliance limits year-round. The city has actively been trying to solve this issue and hopefully we have shown that we are taking this very seriously. The city acknowledges that we will not meet our April 26, 2020 consent our requirement. Therefore, we request a one-year extension to complete our facilities plan (treatment & collections) update and decide on the best path forward. After one year and the completion of the study, the city should have a clear path forward and may request an additional extension based on the results of the study.

The attached timeline provides a brief synopsis of our actions from the past 2+ years. I would be happy to provide additional information regarding any of the items below.

Signed,



Jay T. Mazalewski, PE
Director of Public Works

TIMELINE:

September 2017:

City began testing ammonia levels daily at the headworks and the outfall of the east and west treatment trains.

City contracted with Roberts Consulting to perform inhibition testing on our influent stream for 2 weeks. Tests were taken at two major collection points and the headworks of the treatment plant. Individual samples were taken hourly at these locations. Only two of the tests showed any inhibition. There does not appear to be a regular toxic constituent in our influent stream based on these results.

City began seeding the east train with liquid nitrifiers (MircoPlex NC). East train began nitrifying and met compliance levels within a week.

October 2017:

Reduced testing to M, W, F continued to seed 0.5lbs of Microplex NC to the east train.

City began seeding the west train with liquid nitrifiers (MircoPlex NC). West train began nitrifying and met compliance levels in about 10 days.

Lost nitrification in the west train when flows from the lagoons were added to the west train. East train continued to nitrify.

November 2017:

Reduced seeding Microplex NC to the east train to 0.5lbs on Monday and Friday.

East train continued to nitrify, no nitrification in the west train.

December 2017:

Continued to test ammonia levels, and started testing COD, and nitrates levels on M, W, F.

Continued to seed Microplex NC to the east train to 0.5lbs on Monday and Friday..

Began seeding the west train daily with BioWish Aqua as part of pilot project with the manufacturer.

East train continued to completely nitrify, no nitrification in the west train.

January 2018:

Continued to test ammonia, COD, and nitrates levels on M, W, F.

Wastewater temperatures in the plant dropped below 8 degrees C.

East train continued to nitrify, but not to compliance levels. No nitrification in the west train.

Increased seeding amounts of MicroPlex to the east train, with no increase of ammonia reduction. East train removed about 50% of the ammonia.

Continued to seed the west train with BioWish Aqua. No ammonia removal seen in the west train.

Began researching temperature effects on nitrifying bacteria. Spoke with other cold weather operations and operators.

February 2018:

Continued to test ammonia, COD, and nitrates levels on M, W, F. Water temperatures fall below 7 degrees C and occasionally below 5 degrees C.

Reduced seeding Microplex NC to the east train to 0.5lbs on Monday and Friday. Continued daily seeding of Biowish Aqua in the west train.

East train continued to nitrify approximately 50% of the ammonia, but not to compliance levels. No nitrification in the west train.

Tested each cell of the east train to determine the location of nitrifying bacteria.

Began an experiment attempting to increase the water temperatures. Installed four temporary 1KW heaters for 36hrs in the east train cell 10, where it appeared nitrification was starting. Within 24 hours no ammonia was detected in the east train. East train continued to completely nitrify for 11 days.

Shipped a sample of our influent to BioWish manufacturing for testing. Results showed BioWish nitrifiers would not establish at temperatures below 8 degrees C.

March 2018:

Continued to test ammonia, COD, and nitrates levels on M, W, F. Water temperatures consistently below 7 degrees C and regularly below 6 degrees C.

Continued seeding Microplex NC to the east train to 0.5lbs on Monday and Friday. No seeding of the west train.

Repeated the experiment to attempt to increase the water temperatures. Installed four temporary 1KW heaters for 24hrs in the east train cell 10. Within 24 hours no ammonia was detected in the east train. East train continued to completely nitrify for 2 days. The 1KW heaters were run from generators as there is not adequate power infrastructure at the trains to keep them running full time.

Researched and contacted companies about methods to heat wastewater. Began running cost benefit analysis of different heating technologies.

April 2018:

Continued to test ammonia, COD, and nitrates levels on M, W, F. Water temperatures consistently above 7 degrees C and regularly above 8 degrees C.

Stopped seeding the east train, began seeding BioWish the west train.

East train completely nitrifying, no nitrification in the west train.

Equipment issues affect operations and testing for two weeks.

Compliance and Consent order issued and finalized.

May 2018:

Continued to test ammonia, COD, and nitrates levels on M, W, F. Water temperatures consistently above 10 degrees C and regularly above 12 degrees C.

No seeding in the east train, continued seeding Biowish Aqua in the west train.

East train completely nitrifying, no nitrification in the west train.

Equipment issues again affect operations and testing for two weeks.

Updated software to track east and west train temperatures (4 locations, 2 each train)

June 2018:

Continued to test ammonia, COD, and nitrates levels on M, W, F.

No seeding in the east train, restarted Biowish Aqua seeding in the west train.

East train completely nitrifying, no nitrification in the west train.

Flows dramatically increased to the WWTP, irrigation canals running and groundwater elevations are up contributing to I/I. Retention time reduced to less than 1 day.

Began looking for inflow/infiltration sources. Found 2 sump pumps discharging, 4 broken sewer services and multiple MH's with serious infiltrations.

Received conditional award of Idaho DEQ wastewater facilities planning grant.

End of June east train only removing 60% of ammonia.

July 2018:

Continued to test ammonia, COD, and nitrates levels on M, W, F.

No nitrification occurring in east or west trains.

Started seeding the east train with MicroPlex, continued seeding Biowish in the west train.

2nd week of July city hired a contractor to seal 6 MH's and fixed 3 broken services. Flows dropped by 20% to the WWTP.

Continued search for I/I sources, retention time still under 1 day.

Sent lagoon water samples to microbiology lab to determine if lagoon water was toxic to the nitrifying bacteria. Results came back negative and lagoon water was determined to be healthy.

August 2018:

Continued to test ammonia, COD, and nitrates levels on M, W, F.

No nitrification occurring in east or west trains at the start of the month, by late August east train was completely nitrifying.

Increased seeding the east train with MicroPlex, stopped seeding Biowish in the west train.

Flows decreased, retention time increased to over one day.

September 2018:

Continued to test ammonia, COD, and nitrates levels on M, W, F.

Continued seeding Microplex NC to the east train to 0.5lbs on Monday and Friday. No seeding of the west train.

Began pumping lagoon water through both sides, no negative effects.

East train completely nitrifying. West train began nitrifying without seed, but not to compliance levels.

October 2018:

Continued to test ammonia, COD, and nitrates levels on M, W, F.

Continued seeding Microplex NC to the east train to 0.5lbs on Monday and Friday. Started seeding Microplex NC to the west train.

East & west trains completely nitrifying.

Aquarius Technologies believes a latent toxin may be in sludge accumulated in each cell. PW Staff took 36 sludge samples from the basins and sent to Pace Analytical labs for toxicity analysis.

Finalized order for two 12KW over the side tank heaters. One heater will be installed in cell 10 of the east and west train. Heater can be controlled by the SCADA (telemetry system). They are designed to be removed in the summer months when water temperatures are higher.

November 2018:

Continued to test ammonia, COD, and nitrates levels on M, W, F.

Continued seeding Microplex NC to the east and west train on Monday and Friday.

East & west trains completely nitrifying.

Retention time approximately 2-day, water temperatures above 10 degrees C.

Received sludge testing results, some issues identified with toxic accumulation further review needed.

Issued RFQ for engineering services related to wastewater planning grant. Grant will fund a study of the plant for capacity, ammonia issues, operation issues and study our collection system for I/I issues and other potential toxic/ammonia sources.

December 2018:

Continued to test ammonia, COD, and nitrates levels on M, W, F.

Started seeding Microplex NC to the east and west train on M-F.

East & west trains completely nitrifying for the beginning of the month. East only nitrifying 50% by the end of the month. West continued to nitrify all month.

12KW heater delivery delayed, plan on first week of January for installation.

Effluent temperature dropped below 9 degrees C, basin temperatures dropped below 8 degrees C. Temperature drop coincides with loss of nitrification in the east train.

January 2019:

12KW heaters installed and west basin heater turned on January 16 in an attempt to raise the water temperature. Initial improvement in ammonia reduction in the west basin was observed, however water temperatures only rose 0.5 C to about 7.5C then dropped to 6.5C with colder influent water.

Continued to test ammonia, COD, and nitrates levels on M, W, F.

Seeding Microplex NC to the west train on Monday through Friday to try and restart nitrification.

Lost nitrification to compliance levels in both trains on January 5th. West basin is still removing approximately 50% of ammonia with the heater on, East train is not removing any ammonia.

February 2019:

Continued to test ammonia, COD, and nitrates levels on M, W, F.

Seeding Microplex NC to the west train on Monday through Friday to try and restart nitrification.

Influent water temperatures drop to below 6C and hover between 5C and 6C. East train temperature is typically the same as influent temperature. West train temperature is approximately 0.5C higher than influent temperature.

February 21, contracted electrician moves both 12KW heaters into the west train to try and raise temperature and re-start nitrification. Seeded the west train with additional MicroPlex NC. Stopped seeding east side due to lack of response.

West basin temperature is approximately 1C higher than the east (mid 6C vs mid 5C). Heaters moved to various heights in the water column in an attempt to maximize heat/biological activity.

March 2019:

Continued to test ammonia, COD, and nitrates levels on M, W, F.

Seeding Microplex NC to the west train Monday through Friday to try and restart nitrification.

Influent water temperatures stay below 6C and hover between 5C and 6C.

West basin temperature is approximately 1C-1.5C higher than the east (mid 7C vs mid 5C). West train begins nitrifying, however still not to compliance level consistently.

April 2019:

Continued to test ammonia, COD, and nitrates levels on M, W, F.

Seeding Microplex NC to the west train Monday through Friday to restart nitrification.

Influent water temperatures stay below 6C but start to rise as the month progresses.

Lose nitrification in the west train, temperatures drop to match east train. Heaters were turned off and not turned back on for approximately 1-week. This was an operational error and daily procedures now include checking heaters.

April 3-5, due to lack of nitrification and increased lagoon levels, lagoon pump turned on and lagoon levels reduced. Basin temperatures are reduced to below 5C due to cold lagoon water.

West train heater turned on and reseeded started again in late April. West train temperatures above 8C and 1C-1.5C higher than East train.

May 2019:

Continued to test ammonia, COD, and nitrates levels on M, W, F.

Seeding Microplex NC to the west train Monday through Friday to restart nitrification.

No nitrification occurring in either train.

West train temperatures rising and around 10.5C. East train temperatures around 9.5C.

Reuse water pipe broke to a washpactor, plant shut down, and all influent directed to the lagoons for 3-days (no discharge from the WWTP during these days, all water stored in the lagoons). Plant restarted on June 1.

June 2019:

Plant restarted on June 1. Lagoon pumps turned on to reduce lagoon levels due to diversion of influent.

Significant flow increases due to I/I. City staff identified 3 broken/cracked service lines, 6 leaking manholes. Homeowners notified that service lines must be repaired, contractor scheduled to seal manholes.

Continued to test ammonia, COD, and nitrates levels on M, W, F.

Seeding Microplex NC to the west train Monday through Friday to restart nitrification.

No nitrification occurring in either train.

West train temperatures around 10.5C. East train temperatures around 9.5C. The lack of water temperature increase may be due to the volume of cold groundwater entering the system (I/I).

West train nitrifying about 50%, no nitrification in the east train.

Met with City Attorney, Mayor, PW Director, WWTP Operator, WWTP Design Engineer to discuss next steps, design timeline, construction timeline and options to ensure compliance by April 2020.

July 2019:

Continued to test ammonia, COD, and nitrates levels on M, W, F.

Seeding Microplex NC to the west train Monday through Friday to restart nitrification.

Influent flow higher than normal due to I/I. City staff plugged/seal 3 manhole stubs. Flow starting to decrease at the end of the month

25-50% nitrification occurring in each train.

PH meter at discharge malfunctioned, recalibrated and checked and alkalinity (CaCO₃) is available to ensure nitrification possible.

Both train temperatures rising and around to 14C and above.

Continued to meet and coordinate with City Attorney, Mayor, PW Director, WWTP Operator, WWTP Design Engineer to discuss next steps, design timeline, construction timeline and options to ensure compliance by April 2020.

Public Works employee responsible for day to day operations at the treatment plant was terminated from the city, responsible charge operator (Jared) involvement increased. Staffing was re-organized to ensure maintenance continued. Positions for new operator and replacement responsible charge operator advertised nationally.

August 2019:

Engineering intern from BYU-Idaho was hired to perform in-house testing and collection system testing at the recommendation and under the direction of Scott Rogers from Aqua Engineering. The intern tested 4-6 days per week at the WWTP and collection system looking for anomalies in the waste stream. No conclusive results were found.

Seeding Microplex NC to the west train Monday through Friday to restart nitrification with no results. Seeding was stopped due to lack of response.

25-50% nitrification occurring in each train.

Both train temperatures rising and around to 15C and above.

Contractor attempted to seal MH's but could not as groundwater had receded earlier than normal due to a dry summer. Rescheduled for early June 2020.

Preliminary plant capacities and growth projections were received from Forsgren Engineering (WWTP Facility Plan). Projections showed the plant was approaching capacity in the next 2-5

years for loading and may be exceeding capacity for flows during certain the summer months now.

Process control engineer/Operator-in-training (Wes Vann) hired to work at the WWTP, starting in early September.

8/23/2019 meeting with the City, Forsgren, Aqua, and IDEQ to brainstorm next steps for achieving compliance. See attached agenda and meeting minutes.

Continued to meet and coordinate with City Attorney, Mayor, PW Director, WWTP Operator, WWTP Design Engineer to discuss next steps, design timeline, construction timeline and options to ensure compliance by April 2020.

September 2019:

Engineering intern from BYU-Idaho finished testing and returned to school. No conclusive results regarding illegal discharges or toxic influent were found.

60%-80% nitrification occurring in each train and improving during the month. No seeding was done at this time

Both train temperatures around 15C-16C.

Level III Operator (Toney Roy) hired from Washington State and scheduled to begin in October. WWTP will have 2 full time employees on-site starting in October. 6-10 month transition plan for the Toney Roy to become the responsible charge operator and take over for Jared.

Forsgren and Aqua submitted cost estimates and analysis for their recommended ammonia solutions (break-point chlorination & Ozonation), both solutions had significantly more cost and operational issues than initially presented and therefor not believed to be feasible.

Continued to meet and coordinate with City Attorney, Mayor, PW Director, WWTP Operator, WWTP Design Engineer to discuss next steps, design timeline, construction timeline and options to ensure compliance by April 2020.

October 2019:

Two full staff members now dedicated to the WWTP. Regular testing of influent, effluent resumes. TSS in-house testing added.

Full ammonia removal is achieved throughout the month. No seeding occurred; no major operational changes were implemented.

Both train temperatures started the month around 15C and began to drop to 10C

Draft facility plan submitted by Forsgren. Preliminary plans call for plant expansion and process change away from fixed film.

Continued to meet and coordinate with City Attorney, Mayor, PW Director, WWTP Operator, WWTP Design Engineer to discuss next steps, design timeline, construction timeline and options to ensure compliance by April 2020.

November 2019:

Full ammonia removal is achieved throughout the month. No seeding occurred; no major operational changes were implemented. Temperatures still to falling but still seeing ammonia removal.

Over the tank heaters installed last year failed but under warranty. New heaters being sent by the manufacturer due in late December.

West basin covered with concrete blankets in an attempted to retain heat.

Lagoons were full and needed to be drawn down. Lagoon pump was turned on and run for two days. Basin temperatures dropped to 6.7C and full nitrification was lost (only 75% removal). Lagoon pumps were turned off, temperatures rose, and full ammonia removal returned within two days.

Continued to coordinate/brainstorm with WWTP design engineer and Facilities Plan engineer on solutions and mitigation measures.

December 2019:

Regular testing continued, TSS added to in-house testing. Full ammonia removal lost and by the end of the month only removing 30% of the ammonia.

Over the tank heaters re-installed, however no change in ammonia removal was seen.

Continued to coordinate/brainstorm with WWTP design engineer and Facilities Plan engineer on solutions and mitigation measures.

January 2020:

Regular testing continued. Full ammonia removal lost and by the end of the month no ammonia removal was occurring.

Operational issues with the Drum Screens, Huber Step Screens and Nova Fine Screens consumed the majority of time of the two WWTP operators.

Re-installed the recycle/RAS pump in an attempt to recycle the biology.

Forsgren Facility plan was reviewed and presented to the City Council. Additional information regarding current loading and projection were requested. A higher level of confidence in the projections is required by the city before moving ahead with a \$10-\$12 million expansion/retrofit.

Continued to coordinate/brainstorm with WWTP design engineer and Facilities Plan engineer on solutions and mitigation measures.

February 2020:

Regular testing continued. No ammonia removal was occurring but WWTP was in compliance with all other permit limits.

Forsgren Facility plan was reviewed by WWTP designer with specific comments and recommendations. City to work with WWTP designer to implement pre-treatment program.

Continued to coordinate/brainstorm with WWTP design engineer and Facilities Plan engineer on solutions and mitigation measures.

March 2020:

Regular testing continued, TSS added to in-house testing. No ammonia removal was occurring but WWTP was in compliance with all other permit limits.

Paul Krauth, PE as wastewater professional performed a 2-day, on-site review of the plant and operations to help determine process issues and potential solutions (see attached report).

Over the tank heaters turned off as no improvement was shown with these in operation.

Continued to coordinate/brainstorm with WWTP design engineer and Facilities Plan engineer on solutions and mitigation measures.